ENGINEERING

$LiFePO_4$ AS ADVANCED CATHODE MATERIAL FOR RECHARGEABLE LITHIUM ION BATTERIES

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Abstract

Argonne National Laboratory (ANL) has been developing advanced cathodes, anodes and electrolytes for lithium ion batteries devoted for high power, high energy and high capacity applications. All battery components should be designed to give high electrochemical performance and high stability to obtain the expected calendar life for the proposed applications. Additionally, ANL is engaged in developing new processes that can provide highly homogenous materials with enhanced electrochemical and safety performances. In this context, olivine ($LiFeP0_4$) seems to be a very promising active positive material, due to its structural and thermal stability. Therefore, we propose this material as a good candidate for lithium ion batteries that power medical devices. The project is mainly devoted to fulfill three targets: (1) Develop a new chemistry and cell chemistry of $LiFeP0_4$, (2) Test the material as a positive cathode in laboratory and finally (3) Scale-up of the cathode.